



# Fact Sheet

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## Nuclear Power Plant Licensing Process

The Nuclear Regulatory Commission (NRC) is responsible for licensing and regulating the operation of nuclear power plants. In the past, nuclear power plants were licensed under a two-step process described in Title 10 of the Code of Federal Regulations (10 CFR) under Part 50. This process required both a construction permit and an operating license. In an effort to improve regulatory efficiency and add greater predictability to the process, the NRC now provides alternative licensing processes. One process called a Combined License (COL) combines a construction permit and an operating license with conditions for plant operation. Another alternative called the Early Site Permit (ESP), makes it possible to obtain NRC approval for a site without specifying the design of the reactor(s) that could be built there. In either process, before a nuclear power plant can be built and operated, approval must be obtained from the NRC.

In order to construct or operate a nuclear power plant, an applicant must submit a Safety Analysis Report (SAR). This document contains the design criteria and design information for the proposed reactor and comprehensive data on the proposed site. The SAR also discusses various hypothetical accident situations and the safety features of the plant which prevent accidents or, if they should occur, mitigate their effects. In addition, the application must contain a comprehensive assessment of the environmental impact of the proposed plant. A prospective licensee also must submit information for use in performing reviews of the antitrust aspects of the proposed plant.

When an application to construct a nuclear plant is received, it is first subjected to an acceptance review by the NRC staff to determine whether it contains sufficient information to satisfy the Commission requirements for a detailed review. If accepted, the NRC holds a public meeting in the area of the proposed site in order to familiarize the public with the safety and environmental aspects of the proposed application, including the planned location and type of plant, the regulatory process, and the provisions for public participation in the licensing process. Numerous public meetings of this type are held during the course of the reactor licensing process. All documents and correspondence related to the application are placed in the agency document management system, ADAMS, and in the NRC Public Document Room located in Rockville, Maryland. The NRC issues a press release to media near the proposed plant announcing receipt

of the application and sends copies of the announcement to Federal, State, and local officials. In addition, a notice of receipt of the application is published in the *Federal Register*.

The NRC staff then reviews the application to determine whether the plant design meets all applicable regulations (10 CFR Parts 20, 50, 73, and 100). The review includes, in part: the characteristics of the site, including surrounding population, seismology, meteorology, geology and hydrology; the nuclear plant design; the anticipated response of the plant to postulated accidents; the plant operations including the applicant's technical qualifications to operate the plant; radiological effluents; and emergency planning. When the NRC completes its review and evaluation, it prepares a Safety Evaluation Report (SER) which summarizes the anticipated effect of the proposed facility on public health and safety.

The Advisory Committee on Reactor Safeguards (ACRS), an independent group that provides advice to the five-member Commission on reactor safety, reviews each application to construct or operate a nuclear power plant. The ACRS review begins early in the licensing process, and a series of meetings with the applicant and the NRC staff are held at appropriate times in the review process. When the Committee has completed its review, its report is submitted to the Commission by a letter to the Chairman of the NRC.

An environmental review is performed by the NRC staff in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential environmental impacts and benefits of the proposed plant. After completion of this review, the NRC issues a Draft Environmental Impact Statement for comment by the appropriate Federal, State, and local agencies as well as by the public. Afterwards, the agency issues a Final Environmental Impact Statement (FEIS) where all comments received are addressed.

The law requires that a public hearing be held before a construction permit or a combined license is issued for a nuclear power plant. The public hearing is conducted by a three-member Atomic Safety and Licensing Board. The board is composed of one lawyer, who acts as chairperson, and two technically qualified persons. Members of the public may submit written or oral statements to the licensing board to be entered into the hearing record or they may petition for leave to intervene as full parties in the hearing.

The NRC may authorize the licensee to do some construction at the site prior to the issuance of a construction permit or combined license. This authorization is known as a Limited Work Authorization (LWA) and is done at the risk of the licensee. An LWA may be granted only after the licensing board has made all of the NEPA findings required by the Commission's regulations for authorizing construction and has determined that there is reasonable assurance that the proposed site is a suitable location, from a radiological health and safety standpoint, for a nuclear power reactor of the general size and type proposed.

At some point, after a construction permit is issued, the applicant must, if not part of the original application, submit a Final Safety Analysis Report (FSAR) to support its application for an

operating license. The FSAR describes the final design of the facility as well as its operational and emergency procedures. The NRC prepares a Final Safety Evaluation Report (FSER) for the operating license and the ACRS makes an independent evaluation and presents its advice to the Commission.

A public hearing is not mandatory or automatic for operating license applications. However, the NRC does publish a notice in the Federal register that it received an application for an operating license, has accepted it for review, and is considering issuance of the license. The notice provides the public an opportunity for those whose interest might be affected by the issuance of the license to request a hearing. If a public hearing is held, the same decision process described for the construction permit hearing applies.

### **Combined License**

A combined license, issued under Subpart C of 10 CFR Part 52, authorizes construction of the facility in a manner similar to a construction permit under 10 CFR Part 50. However, the combined license will specify the inspections, tests, and analyses that the licensee must perform. It will also specify the acceptance criteria that, if met, are necessary to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license and the applicable regulations.

After issuing a combined license, the Commission will verify that the licensee completed required inspections, tests, and analyses and, that acceptance criteria were met prior to operation of the facility. At periodic intervals during construction, the NRC will publish notices of these completions in the *Federal Register*. Then, not less than 180 days before the date scheduled for initial loading of fuel, the NRC will publish a notice of intended operation of the facility in the *Federal Register*. There is an opportunity for a hearing following construction, but the NRC will consider petitions for a hearing only if the petitioner demonstrates that the licensee has not met the acceptance criteria. Before a plant can operate, the Commission must determine that the acceptance criteria were met.

In both licensing processes (10 CFR Part 50 and Part 52) the NRC maintains oversight of the construction and operation of a facility throughout its lifetime to assure compliance with the Commission's regulations for the protection of public health and safety and the environment. The licensing process under Part 52 also provides for early site permits (Subpart A), standard design certifications (Subpart B).

### **Early Site Permits**

An early site permit provides for resolution of site safety, environmental protection, and emergency preparedness issues, independent of a review of a specific nuclear plant design. The early site permit application must address the safety and environmental characteristics of the site and evaluate potential physical impediments to developing an acceptable emergency plan. The

NRC documents its findings on site safety characteristics and emergency planning in a Safety Evaluation Report and on environmental protection issues in Draft and Final Environmental Impact Statements.

The early site permit also allows for a limited work authorization to perform non-safety site preparation activities, subject to redress, in advance of issuance of a combined license. After the NRC staff and the ACRS completes their safety reviews, the NRC will issue a Federal Register notice for a mandatory public hearing. The early site permit is valid for no less than 10 nor more than 20 years and can be renewed for 10 to 20 years.

### **Design Certification**

The NRC may certify and approve a standard plant design through a rulemaking, independent of a specific site. The design certification is valid for 15 years. The issues that are resolved in a design certification have a more restrictive backfit requirement than issues that are resolved under other licensing processes. That is, the NRC cannot modify a certified design unless the modification is necessary to meet the applicable regulations in effect at the time of the design certification, or to assure adequate protection of the public health and safety. An application for a combined license under 10 CFR Part 52 can incorporate by reference a design certification and/or an early site permit. The advantage of this approach is that the issues resolved by the design certification rulemaking process and those resolved during the early site permit hearing process are precluded from reconsideration at the combined license stage.

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